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AERIAL SURVEY OF SOUTHERN PINE BEETLE INFESTATIONS IN SOUTHEAST TEXAS

by

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INTRODUCTION

An operations recorder survey was conducted by the Texas Forest Service to evaluate southern pine beetle activity in the epidemic area of southeast Texas. The aerial phase of the survey was completed during September 27-30; ground checks were made October 5-26.

The survey, in conjunction with information on beetle population trends obtained from previous surveys, showed that the population remained at a higher level than found in March of this year and was slightly higher than found in September 1965.

Two noteworthy items substantiated by the survey were: (1) The beetle population had not dispersed into damaged trees, such as lightning struck trees, to the degree previously observed during the same period at a similar population level. Apparently infestation spread was continuing at a level sufficient to retain a concentration of the brood in multiple-tree spots. Summertime temperatures over the epidemic area were lower than recorded during the past six years and favored continued build-up of populations; (2) A more concerted effort than ever before was made by most landowners and the Texas Forest Service in controlling losses by the insect. If such interest is maintained until all remaining known infestations are controlled, losses next year are predicted to decrease. Tree killing has been on the increase each year since 1964.

SURVEY METHODS

The survey was designed, conducted, and analyzed in accordance with "Operations Recorder Survey Plan for Pine Bark Beetles" (1). Flights were made in a Cessna 337 Super Skymaster at an altitude of 500 feet above ground.

RESULTS

The number of spots and the number of red and fading trees per thousand acres (table 1) were less than found in September 1965, which were 12.9 and 16.8, respectively. However, the number of active southern pine beetle infested trees per thousand acres was slightly higher than found in September 1965, which was 2.7. A comparison of the September survey data for 1965 and 1966, applied to the total epidemic area surveyed, reveals that approximately 2,800 fewer reds and faders and 7,000 fewer spots were present than found in September 1965, but 2,000 more active brood trees existed. Thus, a higher population of southern pine beetles was found in fewer spots on this survey than found during the same period in 1965.

TABLE 1. -- Summary of data, southeast Texas southern pine beetle survey, September 1966 (Confidence limits of 90 percent)

	Per M Acres
No. of spots	9.4 ± 1.6
No. of reds and faders	15.4 ± 3.8
No. of southern pine beetle infested trees	3.0 ± 2.6

One hundred and two randomly selected spots were ground checked. Twelve spots - containing 32 active trees - were located; an additional 31 spots had been infested by southern pine beetles but were inactive when checked. Areas where infestations were found are shown on the attached map (figure 1.).

DISCUSSION AND SUMMARY

Southern pine beetle brood trees were more numerous over the 2,000,000 acres surveyed than in late March of this year. The population was slightly higher than found in September 1965.

The value of improved control effort in 1966 is borne out by the fact that from January to September the degree of infestation had increased 50 percent over last year, yet the population was reduced to a level almost comparable to 1965, by late September. This means that 1,307 more spots were detected and 37,055 more brood trees had to be treated to reduce the population to the level found on the survey than during the same period in 1965. Concentration of the beetles in multiple-tree spots was advantageous to the continuing control operations and further reduction of the population could be achieved.

Clearly, the beetle population had not been reduced to a safe level and continued control of known infestations is needed. Now is an opportune time to reduce the amount of loss which can occur next year. Without continued concerted control effort, volume of timber killed annually will likely continue on the increase as has been the case since 1964. Indications are, however, that losses will decrease next year as a result of improved control effort on the part of landowners involved.

RECOMMENDATIONS

1. Detection flights for control operations should be continued.

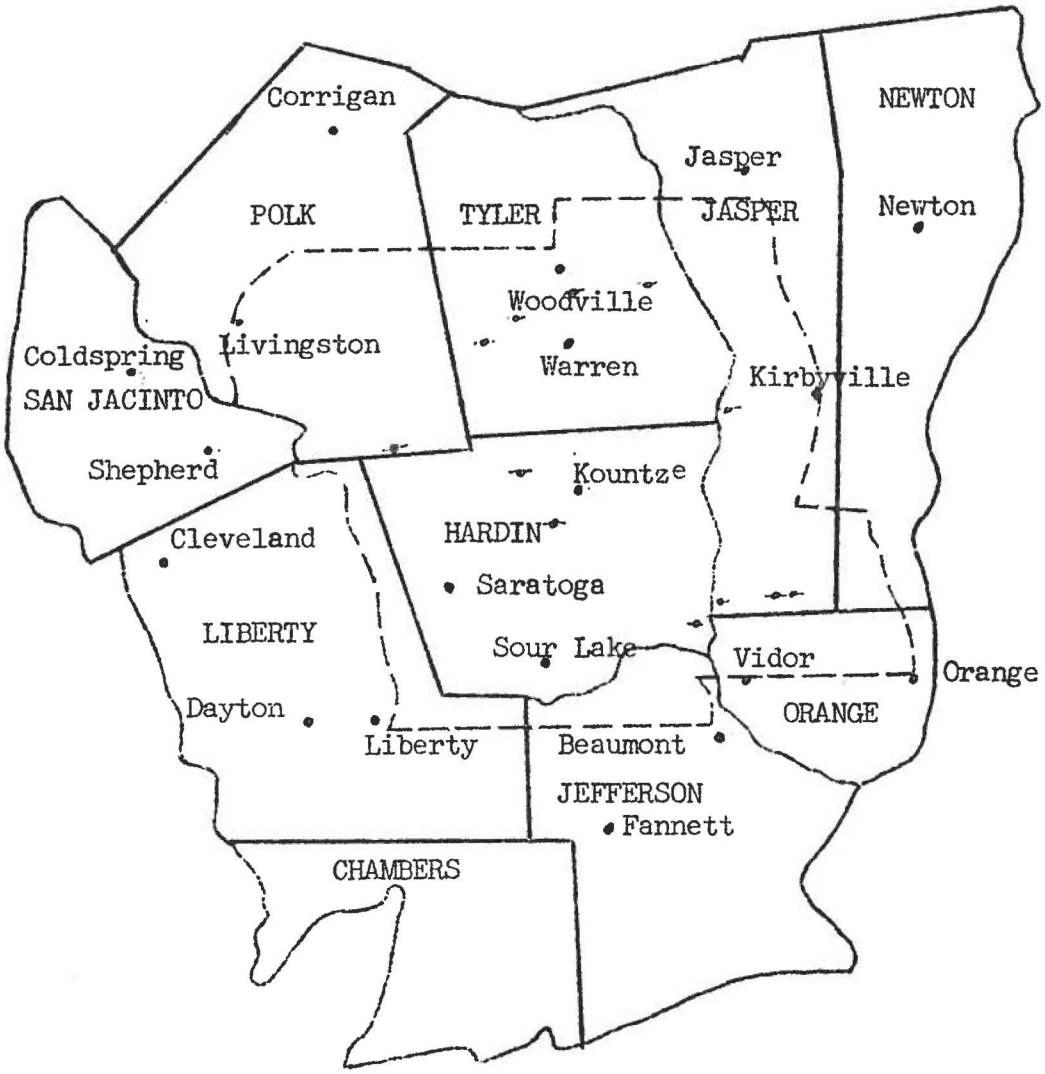
2. Control operations, in accordance with procedures recommended by the Texas Forest Service, should continue until all known infestations are controlled.

3. Another operations recorder survey should be made in January 1967, to determine population trends.

REFERENCES

Ketcham, D. E. 1963. Operations Recorder Survey Plan for Pine Bark Beetles (Revised). Proceedings of the Third Annual Forest Insect and Disease Work Conference Region 8, U. S. Forest Service, Atlanta, Georgia. Unpublished report.

LOCATION OF OPERATIONS RECORDER SURVEY FOR
SOUTHERN PINE BEETLE IN SOUTHEAST TEXAS



LEGEND

- - - - Survey boundary

Active spb spot